

SPACE SYSTEMS SYMPOSIUM (D1)
System Engineering Tools, Processes and Training (2) (6)

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CONCURRENT SYSTEMS ENGINEERING OF A MICROSATELLITE LAUNCH VEHICLE

Abstract

This paper aims to propose a concurrent systems engineering method demonstrated by the use of a commercial systems engineering environment software for the concurrent engineering of a microsatellite launch vehicle (VLM) system. The product (VLM), its life cycle processes and their performing organizations are concurrently modeled throughout the processes of stakeholder analysis, requirements analysis, functional analysis, implementation analysis at each layer of the system breakdown structure. Requirements and attributes captured from those processes are then related to each other obtaining traceability, impact and hierarchical relationships. Concurrent engineering guidelines are then fed to the multidisciplinary integrated product development teams. The paper presents the method, its demonstration on the VLM example and draw some perspectives on the method potential. Conclusions are that the anticipation of product-processes-organization interactions to the early stages of the aerospace product development produces a four-fold gain in productivity and in development time. This in a time of shortening funding for space development is good news.